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Leaked email reveals early Vista update

Microsoft is already planning an update to Vista that will appear as early as the second half of this year, according to a confidential Microsoft email to developers and corporate customers. The email asked customers and partners to "test and provide feedback on Windows Vista SP1 to help us prepare for its release in the second half of CY07 [calendar year 2007]".

Vista Service Pack 1 (SP1) has been given the codename Fiji, but it is not yet clear what new features the interim release will contain. Some observers have predicted that technologies such as Microsoft's WinFS file system may appear. The company ditched WinFS from Vista to prevent further delays to the launch date.

Other predictions are that Fiji will include interface improvements, such as new themes, icons, wallpapers and a more advanced sidebar, as well as new games and improved speech recognition. Microsoft could also introduce a free, easy-to-use music sequencer similar to Apple's GarageBand and built-in support for HD DVD disc playback. Microsoft's increasing focus on the threat from Google means that Fiji is expected to feature closer integration with Windows Live! services.

Microsoft's email made no reference to any of these new features; instead it said that Fiji will contain fixes to allow previously incompatible software to run, as well as addressing other "high impact issues". The email didn't spell out which "high impact issues" afflict the current release of Vista.

Microsoft took 11 months to release the first Service Pack for Windows XP but is expected to release Fiji well before the end of this year to encourage wary cus-

tomers. Many people are reluctant to upgrade because they are waiting until the kinks have been ironed out.

Meanwhile, Microsoft's corporate vice-president of development for the Windows Core Operating System Division, Ben Fathi, inadvertently signalled that the company expects to release the next major upgrade to Windows, codenamed Vienna, as soon as mid-2009.

Speaking at the recent RSA Conference in San Francisco, Fathi said that Vienna would include a radically new user interface and a new WinFS-based file system. While stressing that it was still early days in the Vienna development cycle, he said it would offer a new "user interface paradigm" and possibly include support for hypervisors (see *News Analysis*, page 199).

Microsoft quickly issued a statement qualifying Fathi's revelations. "We are not giving official guidance to the public yet about the next version of Windows, other than that we're working on it. When we are ready, we will provide updates," wrote Microsoft's director for Windows Client on the Microsoft website.



▲ Microsoft's Ben Fathi indicated that the next release of Windows could appear as soon as 2009

Gmail finally made available to all

Google has removed the invitation-only requirement of for its Gmail service, meaning that anyone can sign up and use the free online email service. When Gmail was launched in 2004, it made an immediate impact because it offered 1GB in free storage compared with the 10MB typically offered by free email services.

Despite Google limiting the number of people who could use its service, which led to some Gmail accounts being sold on eBay for as much as \$100 (around £50) in the early days after its launch, Gmail has become very popular. According to web analyst comScore, Gmail had 60 million unique visitors during December 2006, a 71 per cent increase over the same period in 2005. This was still some way behind Yahoo!'s email service, which had 249 million unique

users, and Microsoft Hotmail, which had 236 million users.

Gmail is projected to narrow the gap, partly because the 2.8GB of free storage space it now offers compares well with Yahoo!' and Hotmail's 1GB. Another attraction is Google's email search facility. Its popularity could increase even further if Google were to add support for IMAP as well as POP to its service. Google has promised to keep Gmail free of charge, but may offer larger volumes of storage space for a monthly charge.

Google's decision to limit the service to invited users was partly to stop spammers abusing it. In August 2005 Google partly opened up the service to permit people who supplied their mobile phone numbers to use it, and now it seems that it believes it has enough savvy to combat spammers.

"Since we launched Gmail, we've paid particular attention to combating abuse of the system, including building tools for spam detection and taking measures to ensure that spammers have a difficult time sending their spam messages and getting [them] delivered," said a spokesman.

"We are confident in our tools and systems, but also continue to work on improving them. We know our users have been very happy with the small amount of spam they've received in their Gmail accounts, and we will take necessary measures to ensure that this remains the case for new and existing Gmail users everywhere."

UK users will still only be able to get @googlemail.com addresses rather than @gmail.com addresses, because Google does not own the Gmail brand in the UK.



Apple joins Microsoft in call to end DRM for music

Apple boss Steve Jobs has joined Microsoft founder Bill Gates in calling for the end of digital rights management (DRM) for music downloads. In an open letter published on Apple's website, Jobs wrote that DRM has been a failure because consumers object to the onerous conditions attached to music downloads, while they can freely use DRM-free songs ripped from CDs.

Apple's iTunes system accounts for around 75 per cent of all legal music downloads in the US and 65 per cent in Europe, and the company has sold over two billion downloads since its launch. Jobs essentially blames Apple's use of restrictive DRM on the music companies, which force companies such as Apple to do so.

"Imagine a world where every online store sells DRM-free music encoded in open licensable formats. In such a world, any player can play music purchased from any store, and any store can sell music, which is playable on all players. This is clearly the best alternative for consumers, and Apple would embrace it in a heartbeat. If the big four music companies would license Apple their music without the requirement that it be protected with a DRM, we would switch to selling only DRM-free music on our iTunes store. Every iPod ever made will play this DRM-free music," Jobs wrote.

Jobs' statement went even further than that made by Gates, who declared in December that DRM "causes too much pain for legitimate buyers". Gates didn't suggest scrapping DRM but called for "more flexible models"

and suggested that in the meantime "people should just buy a CD and rip it. You are legal then." It is actually illegal to rip a CD in the UK, although no-one has been prosecuted for it. In 2001 Apple even ran adverts exhorting users to use their computers to "Rip. Mix. Burn."

Jobs' remarks reflect a debate going on in the music industry over the effectiveness of DRM. Many music industry insiders admit that DRM is not working. Privately they admit that illegal downloads over peer-to-peer networks dwarf legal downloads by at least 40 to one, and some put the figure at closer to 100 to one.

Companies such as Amazon, Yahoo! and Rhapsody all support the scrapping of DRM, which they believe is the main obstacle to people buying legal music downloads, rather than price. The *Wall Street Journal* has reported that EMI wants to drop DRM after it judged several test releases in unprotected MP3 format by artists such as Norah Jones and Lily Allen to be "very positive".

However, most of the music industry remains publicly committed to DRM. "Let me be clear. We advocate the continued use of DRM in the protection of our – and our artists' – intellectual property," said Warner CEO Edgar Bronfman.

"The notion that music does not deserve the same protection as software, television, film, video games or other intellectual property simply because there is an unprotected legacy product available in the physical world is completely without logic or merit," he said.

Dell founder regains control of flagging company

Dell's founder and chairman, Michael Dell, has reappointed himself CEO of the troubled PC company. In a bid to turn its fortunes round, Dell has replaced Kevin Rollins, the man he handpicked to become CEO five years ago. After years of gobbling up PC market share to become the world's biggest PC vendor, the company fell to second position last year, behind HP.

Rollins' reign has seen Dell acquire an unfortunate reputation for after-sales service and support, and questions have been raised about product quality after the company was forced to recall millions of laptops that were prone to overheating last year. The company's forays into new markets with products such as printers, networking kit and the ill-fated Dell Ditty MP3 player have enjoyed mixed fortunes. Dell is also being investigated by the US Security and Exchange Commission over alleged accounting irregularities.

Industry analysts have noted that as Dell's rise was based on being the cheapest, customers had little loyalty to the brand when competitors such as HP managed to cut costs and their own prices.

As well as Rollins, six other top Dell executives have quit in recent months, a strong sign that the company is about to undergo a fundamental change. Michael Dell promised his return would herald an improvement in the way Dell treats its customers. "I am enthusiastic about Dell 2.0, which includes our plan to provide the best customer experience, build a strong global services business and ensure our products deliver the best long-term customer value," he said.

Spate of takeovers reduces choice of broadband ISPs

A wave of acquisitions has reduced the choice for UK broadband users, and the trend looks set to continue. In January, just five ISPs owned 88 per cent of the UK broadband market, whereas six months earlier 10 suppliers held a combined 82 per cent share, according to figures released by Thinkbroadband.com. Since then Virgin has taken over Telewest, new player Carphone Warehouse has swallowed up the remains of AOL's UK broadband operation, BT has bought PlusNet and Tiscali now owns HomeChoice.

BT and Virgin now account for nearly half of all broadband subscriptions in the UK, both having a 24.6 per cent market share. Carphone Warehouse, which has been criticised for its customer support, has a 14.9 per cent share, followed by Tiscali with 10.3 per cent and Orange with 7.6 per cent.

Despite a major advertising campaign and cross-promotion with its TV services, Sky Broadband claimed just two per cent of the market in January, and retail giant Tesco came next with one per cent.

"The pattern of providers acquiring others does look likely to continue as 2007 progresses, with rumours appearing weekly as to who is the next big target," the Thinkbroadband report predicted. "What is interesting is the large gap between fifth, sixth and seventh places, showing that any new entrants to the market have a big gulf to cross if they want to become a large, nationally recognised broadband player. This is the situation Sky, Vodafone and O2 (via Be)... find themselves in."

IN BRIEF

MYSTERY BACKERS TAKE OVER WATFORD

Watford Electronics, the company behind Savastore.com and the 'free PC' ISP Redten Internet, has been taken over by a group of unnamed backers.

A statement released by Globally Ltd announced "the purchase of the business of Watford Electronics Ltd, including leading online e-tail website, Savastore.com".

The Companies House database reveals that Globally Ltd was set up just two days previously and trades from the same address as Redten. "Globally is effectively a management buyout of Watford. It also includes external investors, but I'm not at liberty to name them," a spokesman for Globally told *Computer Shopper's* sister title *PC Pro*. He also refused to divulge the names of any Globally Ltd board members.

The involvement of former Watford managing director, Shiraz Jezza, in Globally Ltd is "not confirmed, but he may assist in an advisory capacity," the spokesman said.

The new deal appears to cut adrift Redten Internet, the Watford subsidiary that was set up last year, offering a 'free PC' to customers who signed up for three years of broadband service. "Globally bought out certain elements of Watford, but not Redten. [Redten] is a separate legal entity," the Globally spokesman said. He also claimed that "Redten Internet isn't going out of business".

Two days after its parent company was taken over, Redten withdrew its offer of a free PC with a broadband connection. It posted a message on its website saying: "Unfortunately, Redten Internet has run out of free PCs. In the interests of our customers, and to limit waiting times, the broadband with free PC offer has therefore been temporarily suspended.

"We are currently working hard to fulfil all existing orders and hope to be in a position to reinstate the offer soon. In the meantime, we would like to apologise for any inconvenience caused."

The spokesman claimed that Redten's existing customers would be unaffected. "The service is still continuing as normal," he said.

At press time, Redten's website was unavailable.

IN BRIEF

» VISTA TWEAK
ENABLES ITUNES

Early adopters of Windows Vista have discovered that they are unable to play songs bought from Apple's iTunes Music Store without tweaking Vista's settings.

iTunes will happily play DRM-free songs that have been ripped from a CD, but when it tries to play a purchased track it prompts the user to authorise it by entering their Apple ID and password. Although iTunes then says the authorisation has been successful, it still refuses to play the relevant songs.

A solution has been found and reported on Apple's support forums. A user known as lamboguy claims that a solution is available by right-clicking on the iTunes.exe program icon in the iTunes folder. After that, select Properties, click on the Compatibility tab and enable the 'Run this program as an administrator' tickbox.

Lamboguy added that the same trick will work with other Windows XP applications that do not "run quite well" in Vista.

» FILE SHARING
"HAS NO IMPACT ON
CD SALES"

File sharing has had a negligible effect on the decline in CD sales over the past five years, according to a detailed study by two academics. Felix Oberholzer-Gee of Harvard University and Koleman Strumpf of the University of Kansas have analysed file-sharing activity in 2002 and found that, contrary to music industry claims, there is no evidence that sharers would have bought CDs containing the music that they downloaded over peer-to-peer (p2p) networks.

File sharing exploded between 1999 and 2006, and this huge increase coincided with a 25 per cent fall in CD shipments in the US. The automatic conclusion was to blame the decline on file sharing.

However, Oberholzer-Gee and Strumpf said that "the theoretical effect of file sharing on record sales and industry profits is ambiguous," and that "the inferior sound quality of downloads and the lack of features such as liner notes or cover art perhaps limit such substitution". Moreover, by exposing users to new music, sharing may actually have increased sales.

Microsoft launches Windows Mobile 6

Microsoft used the 3GSM mobile phone show in Barcelona to launch Windows Mobile 6, the latest version of its operating system designed for the fast-growing smartphone market. The first Windows Mobile 6 (WM6) handsets, from HP, Samsung and LG, will be available in the second quarter of this year.

WM6 introduces a Vista-like interface, along with the ability to view and send HTML-formatted email messages and use instant messaging with several people at the same time. WM6 users can also view and edit Office documents in their original format.

Microsoft has been trying to crack the PDA and smartphone markets for a long time but with little success. Previous efforts at Windows Mobile devices were dogged by a reputation for poor battery life, an awkward interface and hostility from mobile phone manufacturers, who didn't want Microsoft to seize control of another market.

In September 2005, Microsoft made a breakthrough when it persuaded Palm to release Windows Mobile Treo smartphones. Since then it has signed up Motorola, LG, HP and Samsung, four of the five top phone vendors.

With an estimated market share of around one per cent, Windows Mobile 5 trailed a long way behind the Symbian operating system, BlackBerry devices and

even Linux, which Motorola is backing as the smartphone operating system of the future. But Microsoft is gaining ground. Last year, nine million Windows Mobile devices from 47 different vendors and 115 network operators were sold. During the last quarter of 2006 Microsoft sold three million Windows Mobile licences, which is a 90 per cent increase over same quarter in 2005.

Microsoft has now overtaken BlackBerry in global market share. One reason is that, while the Exchange email server offers a free push mail service, RIM charges BlackBerry users a monthly fee for its service.

US analysts the Yankee Group predict that by 2010 smartphones will account for 20 per cent of all handset sales and reach annual figures of around 240 million units worldwide. IDC predicts that Microsoft will capture around 22 per cent of this market, compared with just 9.2 per cent for BlackBerry.

Apart from Symbian, the leading mobile phone operating system that's used by Nokia, Microsoft's biggest challenger will be Linux, which is heavily backed by Motorola. As in the PC market, Linux appeals because it is free and open source. Motorola predicts that Linux, which overtook Windows Mobile in market share for mobile handsets last year, will overtake Symbian by 2010.

Movie moguls accuse Google of helping pirates

Hollywood and the big US TV networks have accused Google of turning a blind eye to the uploading of copyrighted content on YouTube and of actively conniving in the promotion of pirated movies.

Google has been in ongoing talks with media companies to broker deals that would allow excerpts from popular programmes to appear on YouTube. Now a lawsuit originally filed in a New York court in 2005 threatens to derail the discussions.

In the case, a group of Hollywood studios sued two Missouri men, Brandon Drury and Luke Sample, for operating websites that sold programs enabling users to search for free movie torrents to download. These sites included the now defunct TheDownloadPlace.com and EasyDownloadCenter.com.

The lawsuit alleges that the defendants promoted their illegal sites by paying Google to place sponsored links alongside the search results for newly released films. The defendants claimed in court that Google didn't just run their adverts passively but

suggested ways of making the adverts more effective, such as using the movie titles as keywords.

According to a *Wall Street Journal* report, anonymous sources close to the defendants said that Google sales staff even suggested they buy keywords such as "pirated" and "bootleg movie download". The *WSJ* said that a Google executive had made a statement to the court confirming the accusations.

Google responded with a statement denying it knowingly colluded with bootleggers. "We prohibit advertisers from using our advertising program to promote the sale of copyright-infringing materials. We are continually improving our systems to screen out ads that violate these policies. Hundreds of thousands of advertisers responsibly abide by our ad content policies and we're committed to preventing those who don't from using our program."

The embarrassing revelations couldn't have come at a worse time for Google, which is in intensive negotiations with media companies that are unhappy

at seeing copyrighted material posted on YouTube. Google bought YouTube last year for \$1.65 billion (around £841 million).

NBC Universal's new CEO, Jeff Zucker, publicly blasted Google for what he claimed was its reluctance to act. "YouTube needs to prove that it will implement its filtering technology across its online platform," he said.

Zucker pointed out that Google has been vigilant at blocking pornography and racist comments from YouTube and questioned the company's motivation at removing pirated material. "It's proven it can do it when it wants to," he said. "They have the capability. The question is whether they have the will."

Google looks certain to move towards paying for content uploaded on YouTube, and YouTube founder Chad Hurley has publicly mooted the idea of inserting three-second adverts in front of the clips to help fund the new business model. He also said that Google was looking at paying people who uploaded their own movies to YouTube if they attracted a lot of hits.



Court makes Microsoft's panic documents public

A US court has made public internal Microsoft documents showing that company executives working on Windows Vista were overawed by Apple's OS X. A preview of Mac OS X 10.4 (Tiger) in June 2004 triggered both admiration and panic.

Microsoft, which was running behind schedule, started to shed features from Windows Vista, including a new file system called WinFS that was to have made searching for files much faster. The company had billed it as one of the most important new technologies before dropping it in June 2006.

In an email to the director of program management for WinFS, Microsoft's general manager of platform evangelism, Vic Gundotra wrote, "Lenn [Pryor, then

director of platform evangelism] says he is blown away by the WinFS clone functionality – it's already working".

Steve Jobs' keynote speech at that year's Worldwide Developers Conference unveiled new OS X features including Spotlight, Dashboard widgets and Core Video. Several Microsoft staff took away developer previews of Tiger.

In another email, Gundotra wrote, "Steve [Jobs] copied our pitch almost word for word. He said 'it's strange that it's easier to search the web using Google than your own machine' and then went on and did a long demo of Spotlight – which is a hot version of WinFS. Lenn was going on and on last night about how fast it was on his Mac."

Pryor reinforced this view when he wrote, "I did system-wide queries against docs, contacts, apps, photos, music and... my Microsoft email on a Mac. It was f***ing amazing. It is like I just got a free pass to Longhorn land today." Longhorn was Microsoft's codename for Vista.

Gundotra forwarded Pryor's comments to Jim Allchin, then head of Windows development, with the observation, "Interesting reaction from one of our LH [Longhorn] evangelists".

"Yes. I know. It is hard to take," replied Allchin. "I don't believe we will have Search this fast." Allchin later sent an email to Bill Gates and Steve Ballmer with a Spotlight screenshot and the single comment: "Sigh..."

UK hacker faces extradition to US

Gary McKinnon, a UK hacker accused by the US government of perpetrating the "biggest military computer hack of all time", faces a US jail sentence "in the region of 45 years, if not more", according to his defence lawyer, Edmund Lawson.

The US claims that McKinnon broke into 97 US military and NASA computer networks between February 2001 and March 2002. McKinnon has never denied hacking the systems.

However, the 41-year old, who is in the High Court appealing Home Secretary John Reid's go-ahead for his extradition, denied prosecution claims that he caused \$700,000 (around £350,000) worth of damage to the hacked systems. McKinnon said he was "amazed at the lack of security" protecting the US military networks. He says he left messages warning that he had hacked the systems, and suggesting security measures be improved.

He used a program called RemotelyAnywhere to seize control of the US military computers. It is a legitimate program that enables remote users to "fully control the keyboard, mouse and monitor [of a Windows PC] from any Java-enabled web browser". McKinnon typically broke into the US networks while the staff there were not at work. He was detected only when a US official noticed that the cursor on their PC was moving across the screen seemingly by itself.

McKinnon said he had no interest in stealing military secrets or damaging the systems. He claims he was hunting for secret information on UFOs. McKinnon faces seven charges of "computer fraud and related activity". Each charge has a maximum sentence of 10 years in prison and a \$250,000 (around £125,000) fine.



▲ Gary McKinnon faces a lengthy stay in a US prison

Student nets £50 million for timely idea

A 26-year-old Oxford student has come up with an idea for a fortune-making website that has already attracted £50 million in backing from a team of venture capitalists.

Thomas Whitfield and two friends have dreamed up a website that traces time back to the dinosaurs and ahead into the future. The "online timeline" is divided into individual minutes, which visitors can buy to commemorate important moments in their lives. A sliding scale of payments determines how prominently a customer's event is displayed on their chosen minute. A minute can be bought for as little as \$1 (around 50p), and the web entrepreneurs anticipate that people and companies will buy up entire days or even weeks to advertise events or products or mark their birthday and so on.

The students conceived the site, called Design the Time, while trying to come up with the next YouTube. They were also inspired by the success of the Million Dollar Homepage, which made British student Alex Tew rich. He sold individual pixels on a webpage to advertisers, and within several months made \$1 million (around £500,000).

The friends entered a competition called Idea Idol, which was run by the Said Business School at Oxford University. Their idea won the first prize of £5,000 and two of the judges, Dan Wagner and Sháá Wasmund, were so impressed that they offered the team £50 million in funding from their own venture capital fund, Bright Station Ventures.

Microsoft UK is also getting behind the website, which will go online later this year. "It was clear to us from the briefing notes... that Design the Time was one of those truly great ideas. It's the kind of idea that, while simple, has the ability to capture the imagination of the whole world. We believe Design the Time has the potential to be the next YouTube or Skype" said Jim Lawn, head of innovation at Microsoft UK.

IN BRIEF

PERSONAL CARD READERS TO COMBAT FRAUD

UK payments association APACS is to pilot a scheme aimed at reducing internet fraud. Banks will issue customers with personal handheld credit card readers that customers will use whenever they are buying goods online or over the phone.

Such 'card-not-present' transactions are vulnerable to fraud, which added up to £95.3 million in the first half of 2006. That figure makes it the largest single form of plastic card fraud.

Consumers would place their card into the reader and type in their PIN. The reader would then generate a one-off passcode that is transmitted to the retailer to verify the transaction.

However, Paul Simms, CEO of the fraud-screening company The 3rd Man, said that many retailers deal with fraud and manage the threat with "little or no impact on their genuine and honest customers". He claims that these card readers are just another attempt by financial institutions to shift the liability for card-not-present fraud from the banks on to the customer.

PASSPORT CHIPS HAVE TWO-YEAR WARRANTY

Biometric microchips embedded in the new ePassports have warranties of only two years, despite the 10-year lifespan of the documents, the National Audit Office (NAO) reports.

The chip technology is so new that there's no way of knowing how long the chips will last, the NAO said. While the chips have undergone tests, their long-term durability is ultimately unproven, leading manufacturer NXP Semiconductors to offer the two-year warranty.

Should the chip stop working, the passport is still valid.

According to an NAO report, "an ePassport remains a valid travel document even if the electronic chip fails". Travellers would then be issued with a letter telling them to renew their passport.

A Home Office spokesperson said that any passports with a faulty chip will be replaced at no cost to the owner, but he added that the government is "very confident" that the chips will last the 10-year lifespan of passports.

IN BRIEF

» COMPUTER GAMING IS GOOD FOR YOU

Playing video games may improve how well surgeons perform key-hole operations, according to a new study. Computer games could also help players to lose weight.

A study published in the US-based *Archives of Surgery* has found that there is a strong link between the skills required to play video games and to perform laparoscopic surgery. Laparoscopy involves manipulating instruments through a small incision or body opening with a TV screen providing visual cues to the surgeon.

Surgeons who were good at video games scored best in a day-and-a-half-long surgical skills test. The study also found that gaming performance was more significant than the surgeon's length of training or prior experience in laparoscopic surgery.

Another study, by researchers at Liverpool John Moores University, found that playing computer games on consoles such as the new Nintendo Wii could help players lose weight. It claimed that as much as 12kg could be lost due to body movement while playing.

» EBAY BANS SALE OF IN-GAME GOODS

eBay has moved to ban the sale of in-game items from its US and UK sites. The practice, dubbed 'gold farming', occurs when gamers trade their hard-earned virtual resources for more tangible currency.

The ban includes the sale of game accounts, game characters, game currency, game points or any other similar game items.

"eBay is committed to making the site a safe place to trade," said an eBay spokesperson. "Due to the legal complexity associated with these types of items, we believe that it is in the best interests of the marketplace to disallow the sale of virtual items at this time."

This "legal complexity" arises because the terms of service for online games often outlaw such sales. Sony, for example, has clamped down on sales in the past, only in order to set up its own exchange system for its EverQuest II game.

Second Life is exempt from the eBay ban. It is not considered a game and such exchanges are a part of its function.

Intel announces 80-core processors

Intel has developed a prototype 80-core processor capable of super-computing processing power, while consuming little more energy than a 60W lightbulb.

Intel said the processor can perform around one trillion calculations per second (1 teraflop) running at 3.16GHz and using just 62W, less than the processors in many of today's PCs.

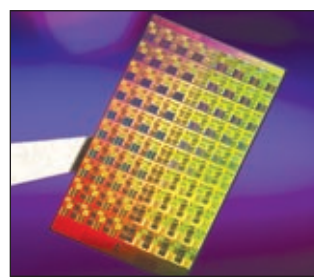
"The first time teraflop performance was achieved was in 1996, on the ASCII Red Supercomputer... That computer took up more than 2,000 square feet, was powered by nearly 10,000 Pentium processors, and consumed over 500 kilowatts of electricity. Intel's research chip achieves this same performance on a multi-core chip that could

rest on the tip of a finger," said the company.

The prototype reflects Intel's focus on trying to achieve the maximum power per watt in its chip designs. Simply ramping up speeds leads to overheating problems. Intel said its 80-core processor can run at up to 5.7GHz and achieve 1.8 teraflops, but at a cost in processing power per watt.

An advantage of Intel's approach, in which each core uses a simpler design than today's x86-based processors, is that multi-core chips can be fabricated more easily. Each unused core can also be powered down when not in use, greatly improving energy efficiency and heat output.

However, there are some obstacles. Perhaps the biggest is



▲ Intel's teraflop chip runs at 3.16GHz and uses just 62W of power

that using processors with masses of cores will require a complete rethink of software development, which is currently based on the model of accessing one powerful processor core. Sony's Cell chip architecture, which has eight subsidiary cores around a central processor unit, has already proven a challenge to games developers writing for the PlayStation 3.

Intel said that processors with dozens of cores, designed for PC desktops, could appear in as little as five years' time.

Botnets are "pandemic"

The very future of the internet is threatened by hundreds of millions of PCs infected with botnet software, according to Vint Cerf, the man who co-developed the TCP/IP protocol that allows computers to interconnect.

Speaking at the World Economic Forum in Davos, Switzerland, Cerf compared the spread of botnets to a "pandemic". Botnets are formed by PCs that have been infected by malware and are connected to the net. They can be controlled remotely, typically without the user being aware. The infected PCs are used to relay spam, launch denial of service attacks and perpetrate other crimes.

Cerf said that, of the 600 million PCs estimated to be linked to the internet, at least 150 million were infected with botnet software. Not only were they harnessing vast amounts of processing power for criminal purposes, but the vast amount of traffic they generate threatens to overload the internet.

Paul Sop, CTO of web-security company Prolexic, which specialises in countering distributed denial of service (DDoS) attacks, said: "A botnet... has many tools which the attacker can implement. Attackers have started finding ways around many common DDoS defence systems and are adding those capabilities to their botnets."

However, all is not lost. "Despite all that, the net is still working... It's pretty resilient," observed Cerf.

Web service offers to name that tune

A new website promises to address that most frustrating of human conditions: having a tune you can't name nagging away in your head. US startup Melodis has launched a web-based service that lets you hum the melody that has been bugging you all day, and it will try to identify it.

It's still early days for the website (www.midomi.com), which is still in beta. For now it is being pitched to users as a new kind of social-networking service, where people can comment on other visitors' attempts at singing and also pay for downloads from Amazon.com of tunes they have successfully identified. However, Melodis CEO Keyvan Mohajer claimed that the underlying technology has the potential to become a powerful new search tool with all kinds of uses.

The company has developed a proprietary technology called Multimodal Adaptive Recognition System (MARS), which differs from previous attempts at tune recognition, such as that announced last year by Nayio Media, which analyses changes in note pitch. Melodis' system goes further, he claimed.

"MARS Search... extracts a variety of features from the tune including speech, pitch, tempo and even the location of pauses. [It] analyses each element

independently and adapts to the stronger components," he said.

"MARS Search takes speech content into account if the user sings the lyrics and ignores speech content if the user hums or whistles the song. This is the first search engine that can match human voice to human voice by analysing these multiple features."

Melodis' technology is different from the Shazam service offered with UK mobile phones. With this service you dial 2580, point your handset at a music source for 30 seconds and a text message identifies the song. This service works only by comparing the audio fingerprint of the source with a database of commercially available releases.

Melodis said it is working on making its service available for mobile phone users and is investigating adding the ability to search by tune to a search engine.

Tests conducted by *Shopper* produced mixed results. Humming Nancy Sinatra's *These Boots Are Made For Walking* produced suggestions as varied as *We Belong Together* by Mariah Carey and an obscure Mark Knopfler track, as well as the correct tune. Whistling *Yesterday* by the Beatles prompted Midomi to suggest Led Zeppelin's *Stairway to Heaven*.